

CLAIMS

1. A fan blade comprising:

a plurality of fiber composite layers;

at least one high elongation fiber composite strip joining one of said fiber composite layers at a joint.

2. The fan blade of claim 1 wherein:

the modulus of said high elongation fiber composite strip is from about 13,790 MPa to about 96,530 MPa.

3. The fan blade of claim 2 wherein:

the modulus of said high elongation fiber composite strip is from about 41,370 MPa to about 62,055 MPa.

4. The fan blade of claim 1 wherein:

the tensile elongation of said high elongation fiber composite strip is at least about 1.75%.

5. The fan blade of claim 4 wherein:

the tensile elongation of said high elongation fiber composite strip is at least about 3%.

6. The fan blade of claim 1 wherein:

said high elongation fiber composite strip is embedded within an interior surface of said fan blade.

7. The fan blade of claim 1 wherein:

said high elongation fiber composite strip includes a plurality of high elongation fiber composite strips layered from a first outside surface of said fan blade towards an interior of said fan blade.

8. The fan blade of claim 7 wherein:

ends of said high elongation fiber composite strips are staggered such that a length of each high elongation fiber composite strip decreases as position from said first outside surface increases.

9. The fan blade of claim 7 wherein:

high elongation fiber composite strips are contiguously layered from a first outside surface of said fan blade towards an interior of said fan blade.

10. The fan blade of claim 7 wherein:

said high elongation fiber composite strips extend around a leading edge of said fan blade to a second outside surface of said fan blade, said high elongation fiber composite strips layered from said second outside surface of said fan blade towards said interior of said fan blade.

11. The fan blade of claim 7 wherein:

high elongation fiber composite strips include a first high elongation fiber composite strip having fibers oriented in a first direction and a second high elongation fiber composite strip having fibers oriented in a second direction different than said first direction.

12. The fan blade of claim 11 wherein:

said first direction is 45 degrees relative to said spanwise direction of said fan blade.

13. The fan blade of claim 12 wherein:

said second direction is parallel to a spanwise direction of said fan blade.

14. The fan blade of claim 11 wherein:

said high elongation fiber composite strips include a third high elongation fiber composite strip having fibers oriented in a third direction different than said first direction and said second direction.

15. The fan blade of claim 14 wherein:

said first direction is 45 degrees relative to a spanwise direction of said fan blade;

said second direction is parallel to said spanwise direction of said fan blade;
and

said third direction is -45 degrees relative to said spanwise direction of said fan blade.

16. The fan blade of claim 1 wherein:

said at least one high elongation fiber composite strip is positioned at a leading edge of said fan blade.

17. The fan blade of claim 1 wherein:

said at least one high elongation fiber composite strip is positioned at a leading edge, trailing edge and tip of said fan blade.

18. A method of making a fan blade comprising:

joining a plurality of fiber composite layers;

joining at least one high elongation fiber composite strip to one of said plurality of fiber composite layers, an end of said high elongation fiber composite strip meeting an end of said fiber composite layer at a joint.

19. The method of claim 18 wherein:

said plurality of fiber composite layers are joined using an adhesive.

20. The method of claim 18 wherein:

said plurality of fiber composite layers are joined using co-curing.

21. The method of claim 18 wherein:

said at least one high elongation fiber composite strip is joined to said fiber composite layer using an adhesive.

22. The method of claim 18 wherein:

said at least one high elongation fiber composite strip is joined to said fiber composite layer using co-curing.